

INVENTION RECORD

D-1098 Date

TO: Patent Counsel, Richmond

The following background information and additional details are submitted concerning the invention described below (or to supplement an earlier preliminary disclosure on Form A).

1. DESCRIPTIVE TITLE OR SUMMARY OF THE INVENTION: Method of making a heater with bullet shape (design) to be used in the Beta Article; specifically useful for Beta Cigarettes made with cut-filler

2. FIRST DISCLOSURE TO ANYONE ELSE (specify where, when, and to whom, and whether written or oral): On May 11, 1994 to Chuck Higgins & Grier Fliedboser; on May 12 to Bill Keen; and on May 13 to all MDF staffs.

3. FIRST WRITTEN DESCRIPTION OR SKETCH (specify dates, records and their location): April 30, 1994; Thermal Spray notebook (Book II); MDF, Ashland

4. FIRST PRACTICE OF THE INVENTION--(A) LABORATORY, (B) PLANT, (C) ELSEWHERE (specify dates, records relied on and their location): Conceptually, it is believed to be working. I am in the process of making this heater. With the experience from tubular heater we should not have difficulties to make this heater (process of making heaters is similar).

5. WITNESSES TO PRACTICE OF THE INVENTION (specify names, places, and dates): Has not practiced yet; in the process of making it

6. HAS THE INVENTION BEEN DISCLOSED OUTSIDE THE CORPORATION? (specify): Phil ~~the~~ Gun, Marco Machine. And it will be disclosed to Plasma Technology Inc. (Mr. Rob Greenlaw).

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7. OBJECTS OF THE INVENTION (what the invention is intended to accomplish): This invention is intended to be used in Beta Article with Cut filler Cigarettes. It is also intended to eliminate the Carbon mat from Beta Cigarettes by using this heater concept in the Beta Article.

8. GIVE BROAD DESCRIPTION OF INVENTION IN GENERAL TERMS. SUPPLEMENT BY GIVING DETAILED DESCRIPTION WITH PRECISE INFORMATION. INCLUDE EXAMPLES TO SHOW PREFERRED FORMS OF THE INVENTION AND AVAILABLE DATA CONCERNING UPPER AND LOWER WORKING RANGES THAT ARE PERMISSIBLE. INCLUDE ANY DATA ON LIMITING CONDITIONS. ATTACH REPORTS, DRAWINGS, OR THE LIKE. USE ADDITIONAL SHEETS IF NEEDED: This heater has a shape of a bullet with very sharp head (tip) that upon insertion into a cigarette rod would cut the fillers and compress them to the sides and position itself ^{co-axially} right at the middle of the cigarette rod. As schematically given in the Figure, heater is made of a metallic tube that is tapered on one end with a solid & sharp head. The heater substrate is a superalloy similar to tubular heater, or Aluminides of Nickel or Iron (Cr free substrate). The heater substrate can be machined or stamped to the shape, then by using thermal spray technique resistive (heater) material will be deposited onto the outer surface. The process of making is similar to tubular heater. After deposition of heater material, then it will be laser cut into an eight or six blade heater, and electrical leads will be brazed to each heater. All the steps, in making this heater, would be very similar to tubular heater and we should not have difficulty in making them.

As a support to the heater structure and for better mechanical strength, a metallic rod will be mounted inside the heaters connecting front & back of the heater.

Figures are attached.

Cigarette-rod needs to have lower density to make the insertion of head easier. After heater insertion and due to the compaction, the rod density will increase.

9. LIST ANY CLOSELY RELATED PATENTS, PATENT APPLICATIONS, PUBLICATIONS, OR OTHER ASPECTS OF POSSIBLE PRIOR ART KNOWN: Possibly, a disclosure or patent related to Beta Article.

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10. ADVANTAGES OF THE INVENTION OVER PRIOR ART: (1) elimination of Carbon mat, (2) Use of Cut filler instead of mat, (3) elimination of smoke condensate inside the article, and (4) since paper is not burnt, there is no off-taste from paper and no product of paper pyrolysis

11. STATE AT LEAST ONE SPECIFIC UTILITY OF THE INVENTION: Beta product.

12. PERMISSIBLE VARIATIONS, ALTERNATIVES, OTHER COMMENTS: A star (6 or 8 blades) shape header with tapered head (tip).

Submitted by: (1) DATE 5-19-94 SIGNATURES Mohammad R. Hazaliged
(2) _____
(3) _____
(4) _____

Manager's Signature: Charles J. Higgins
5/23/94

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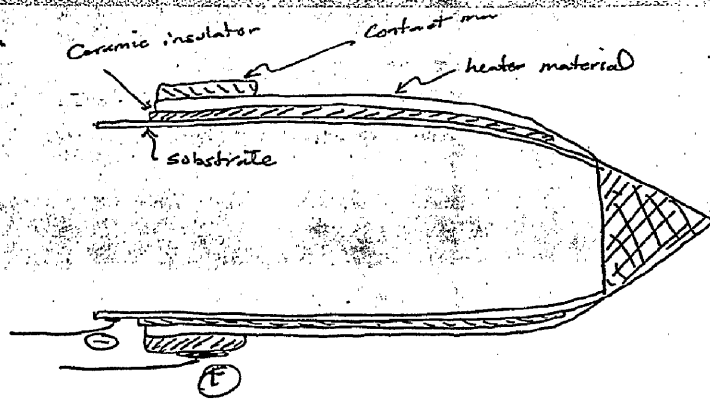


Fig. 1
Schematic of a Bullet heater
with coated layers

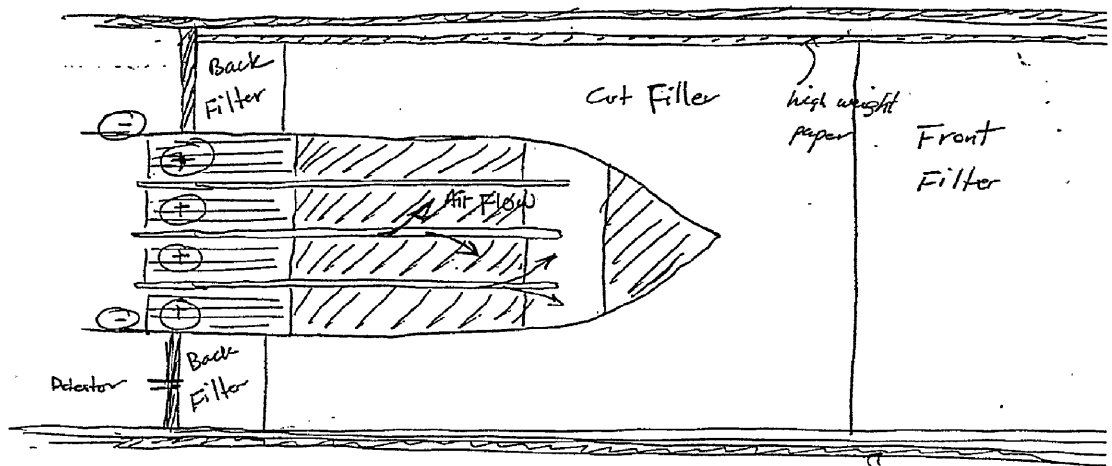


Fig. 2. Schematic of a heater with
cut filler

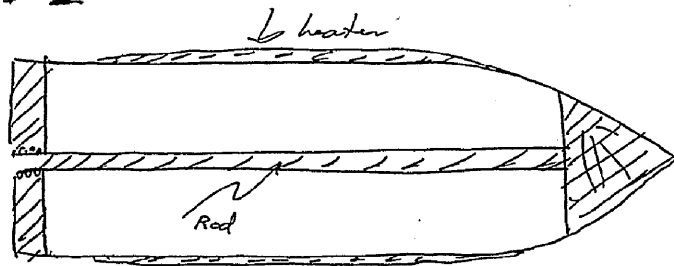


Fig. 3. Schematic of a heater with
a support rod

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